

Magic Squares 1



In a Magic Square, the rows, columns and diagonals **all add up** to the same number. This is the **Magic Number**.

Complete the following Magic Squares and find their Magic Numbers.

1).

8	2	11
	7	

Magic Number = _____

2).

5		
	6	2
		7

Magic Number = _____

3).

10	3	6

Magic Number = _____

4).

4		
	6	1
		8

Magic Number = _____

5).

2	9	4

Magic Number = _____

6).

		12
	10	11
8		

Magic Number = _____

7).

9	2	10
	12	

Magic Number = _____

8).

14		
	5	
8		4

Magic Number = _____

9).

11	1	12
	15	

Magic Number = _____

10).

		15
		1
	13	1

Magic Number = _____

11).

11	7	3
		8

Magic Number = _____

12).

		8
	9	
10		12

Magic Number = _____

13).

	18	8
	10	
	2	

Magic Number = _____



14).

		6
	12	
18	8	

Magic Number = _____

15).

		15
13	18	11

Magic Number = _____

Quick Eights



Robert looks at the multiplication table of eight and thinks of what Amy showed him with sevens. "I have an idea!" he says.

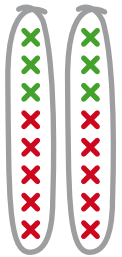
$1 \times 3 = 3$



$1 \times 8 = 8$

$1 \times 5 = 5$

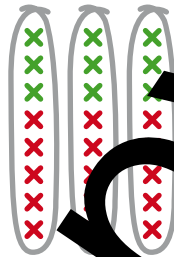
$2 \times 3 = 6$



$2 \times 8 = 16$

$2 \times 5 = 10$

$3 \times 3 = 9$



$3 \times 8 = 24$

$3 \times 5 = 15$

He does not need to draw diagrams. Complete his working out.

$$\begin{array}{r}
 4 \times 8 = \quad 4 \times 3 = \square \\
 4 \times 5 = \square + \\
 \hline
 4 \times 8 = \square
 \end{array}$$

$$\begin{array}{r}
 6 \times 8 \quad 6 \times 3 = \square \\
 6 \times 5 = \square + \\
 \hline
 6 \times 8 = \square
 \end{array}$$

$$\begin{array}{r}
 7 \times 8 = \quad \square \times \square = \square \\
 \square \times \square = \square + \\
 \hline
 7 \times 8 = \square
 \end{array}$$

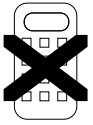
$$\begin{array}{r}
 \square \times \square = \square \\
 \square \times \square = \square + \\
 \hline
 9 \times 8 = \square
 \end{array}$$

$$\begin{array}{r}
 8 \times 8 = \quad \square \times \square = \square \\
 \square \times \square = \square + \\
 \hline
 \square \times \square = \square
 \end{array}$$

$$\begin{array}{r}
 10 \times 8 = \quad \square \times \square = \square \\
 \square \times \square = \square + \\
 \hline
 \square \times \square = \square
 \end{array}$$

Amy looks at his work and is pleased. She says to Robert, "You used the 3 and 5 times tables to work out the multiplication of 8. What other multiplication tables could you have used?" Robert looks puzzled. What other multiplication tables could he have used?





Multiplication Grids



Fill in all the spaces in these **multiplication** grids.

1).

X	2	6	4	7
3				
5		30		
2				
4				

2).

X	5	2	4	3
6				
3				
2				
8				

3).

X	3	7	2	4
5				
2				
10				
3				

4).

X	3		4	10
5		10		
6				
3				
2				

5).

X	5	4		2
5				
4			40	
7				
2				

6).

X		7	6	5
4				
5	15			
3				
10				

7).

X	6	10		5
4				
5				
2			6	
				15

8).

X	4		3	10
7				
			12	
5			25	
9				

9).

X	5	2	4	
3				30
8				
5				
				60

10).

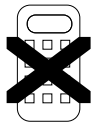
X		10		
4				16
				28
9				
5	10			

11).

X	7		8	6
10			40	
3				
				12
	35			

12).

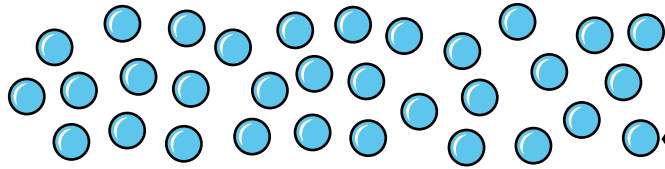
X	3			5
7			14	
9				
			8	16
8				



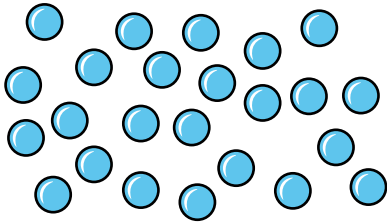
Arrays



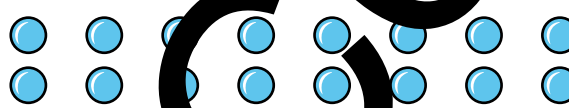
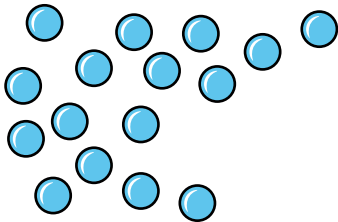
Andrew sees this and tells Alan that he solves $32 \div 8$ in a very similar way, but he is much neater! He starts with 32 counters.



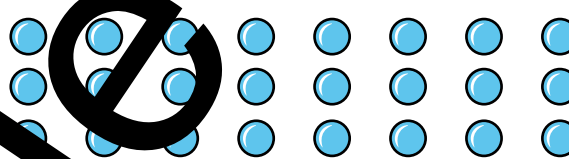
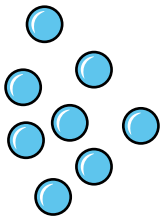
He then makes a row of eight counters.



He repeats this and makes another row of eight underneath the first row.

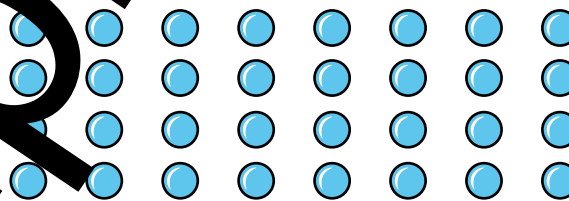


Again he makes another row of eight.



Until he has no counters left.

He has 4 rows of 8 counters.



$$\underline{32 \div 8}$$

You will need counters or blocks. Use this method to calculate the following.

$33 \div 3 = \square$

$48 \div 4 = \square$

$45 \div 5 = \square$

$24 \div 6 = \square$

$28 \div 7 = \square$

$45 \div 9 = \square$

$40 \div 8 = \square$

$36 \div 9 = \square$

$36 \div 6 = \square$

$54 \div 6 = \square$

$72 \div 8 = \square$

$35 \div 7 = \square$

$48 \div 8 = \square$

$56 \div 7 = \square$

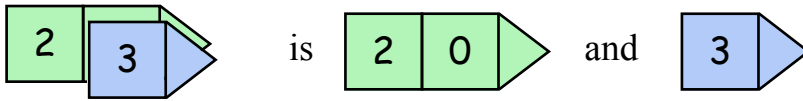
$72 \div 9 = \square$



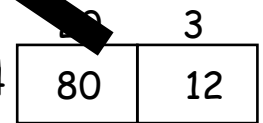
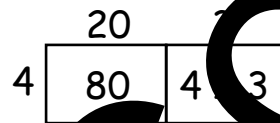
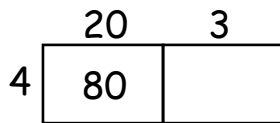
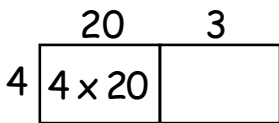
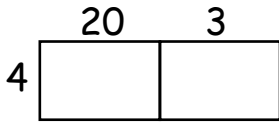
Grid Multiplication



To work out 4×23 we can partition 23.



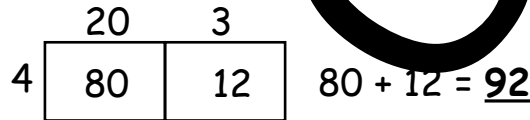
We show this multiplication in a grid.



$4 \times 20 = 80$ and

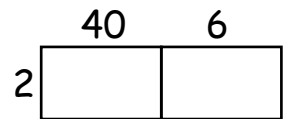
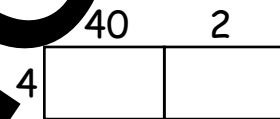
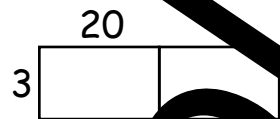
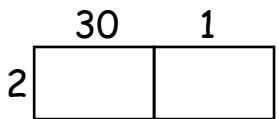
$4 \times 3 = 12$.

Therefore, $4 \times 23 = 80 + 12 = 92$

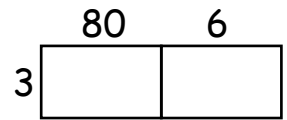
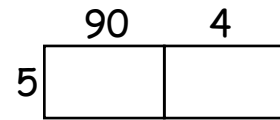
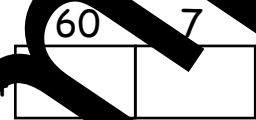
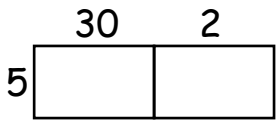


Which multiplications are being worked out with these grids?

Do not work out the answers! The first one has been done for you.

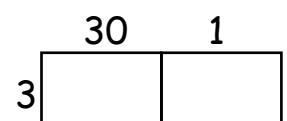
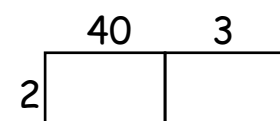
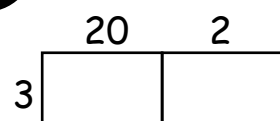


2×31



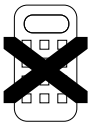
Write the multiplication being worked out in each grid. Then work out the answer.

The first one has been done for you.



2×34

$60 + 8 = 68$



Multiple Maze (6, 7, 8 & 9)











Bull, frog, seal and snake are all stuck in the maze and want to play with a toy.

Each one can follow a **multiple trail** of 6, 7, 8 or 9 to a toy.

They can only move horizontally or vertically in the maze, **not** diagonally.

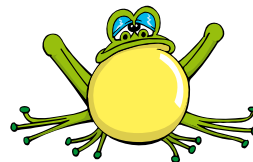
Colour in the correct trails and find out who plays with what.

Beware, there are plenty of wrong trails !!!

153	162	171	180	240	234	228	222	216	144	150	156	162	168	174	180	176	168	160	152	144	136	128	120	114
144		189	246	252	258	228	210	138	132	126	120	114	108	102	96	102	108	54	45	36	27	18	12	152
135		234	228	222	216	234	204	144	150	156	162	117	108	99	90	81	72	63	54	45	36	27	18	12
126	280	273	266	243	234	210	204	198	192	153	144	135	126	72	78	84	90	45	36	27	18	12	30	36
117	234	228	159	252	225	234	243	252	186	162	72	66	60	66	117	108	99	36	27	18	12	30	36	88
108	240	246	152	245	216	207	198	189	180	171	78	96	54	99	126	135	108	45	36	27	18	12	30	36
378	234		238	225	266	259	198	174	90	84	90	48	36	27	18	12	30	36	88	12	54	64	72	80
369	228		231	234	273	252	207	168	96	56	49	42	35	28	21	14	7	6	60	56	6	60	56	64
360	222	280	217	224	243	280	245	216	162	102	63	30	36	42	48	14	15	144	8	16	24	32	40	48
351	216	273	266	259	252	245	238	225	156	150	70	24	18	12	9	54	7	2	135	126	117	16	88	96
342	210	280	273	270	261	270	231	234	231	144	77	140	12	6	9	144	99	108	8	80	72	64	72	64
333	204	297	288	279	224	217	224	243	224	138	84	133	6	6	18	81	90	18	81	90	18	27	18	27
324	315	306	224	288	231	210	203	252	217	132	91	84	77	70	63	56	49	108	117	108	99	90	81	81
333	245	238	231	297	238	245	196	261	210	126	9	105	12	9	8	16	36	63	14	30	45	30	45	30
342	252		306	189	182	189	196	261	210	126	9	105	12	9	8	16	36	63	14	30	45	30	45	30
351	259		294	168	175	224	217	210	126	9	105	12	9	8	16	36	63	14	30	45	30	45	30	45
360	266	273	280	287	161	140	133	126	117	108	99	36	27	18	12	30	36	88	12	54	64	72	80	88
384	222		273	154	147	154	161	68	175	9	91	84	77	70	63	56	49	108	117	108	99	90	81	81
376	216		266	161	104	42	48	60	60	72	78	36	45	54	64	90	99	126	171	162	171	180	180	180
368	210	204	344	259	168	96	36	72	27	18	9	18	27	104	63	72	81	104	135	144	153	162	171	171
360	192	198	336	252	175	88	72	54	36	72	78	36	45	54	64	90	99	126	171	162	171	180	180	180
352	186	320	328	189	182	84	72	54	36	72	78	36	45	54	64	90	99	126	171	162	171	180	180	180
344	180	312	304	296	189	84	72	54	36	72	78	36	45	54	64	90	99	126	171	162	171	180	180	180
336	174	168	162	288	280	273	266	259	198	174	90	84	90	48	36	27	18	12	30	36	88	12	54	64
328	320	312	304	296	189	84	72	54	36	72	78	36	45	54	64	90	99	126	171	162	171	180	180	180



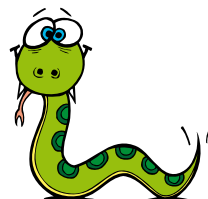
follows multiples of _____
to play with _____



follows multiples of _____
to play with _____



follows multiples of _____
to play with _____



follows multiples of _____
to play with _____

Calculated Colouring 14

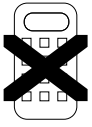
Sample Copy

Find the answer to each sum.

Now colour each section according to the Key below.

Key

Light Green	Purple	Light Blue	Black	Dark Green
2	3	4	5	6
Dark Blue	Grey	Yellow	Red	
7	8	9	10	



Decimals to Fractions (tenths and hundredths)



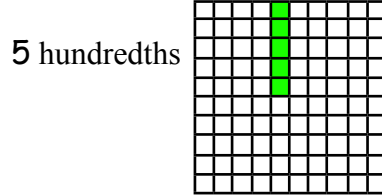
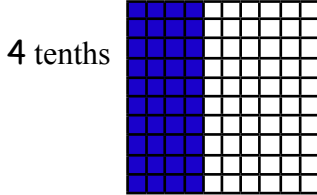
We can see the place value of numbers.

T O t h

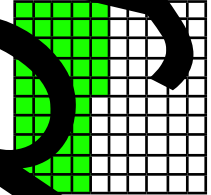
3 6 . 4 5

36.16 is 3 Tens, 6 Ones, 4 tenths and 5 hundredths.

3 Tens and 6 Ones is the same as 36 Ones. What about 4 tenths and 5 hundredths?



is the same as 45 hundredths.



Complete the following:

3 tenths and 4 hundredths = _____ hundredths

2 tenths and 1 hundredth = _____ hundredths

1 tenth and 8 hundredths = _____ hundredths

9 tenths and 5 hundredths = _____ hundredths

7 tenths and 4 hundredths = _____ hundredths

6 tenths and 2 hundredths = _____ hundredths

5 tenths and 0 hundredths = _____ hundredths

8 tenths and 0 hundredths = _____ hundredths

This is how we write one tenth as a fraction $\frac{1}{10}$. This is how we write one hundredth as a fraction $\frac{1}{100}$.

Example. Write the following decimals as fractions a). 0.7 b). 0.47.

a). 0.7 is 7 tenths = $\frac{7}{10}$ b). 0.47 is 4 tenths and 7 hundredths or 47 hundredths = $\frac{47}{100}$

Write the following decimals as fractions

- 1). 0.13 2). 0.57 3). 0.2 4). 0.4 5). 0.38 6). 0.1 7). 0.01
 8). 0.5 9). 0.08 10). 0.67 11). 0.2 12). 0.99 13). 0.31 14). 0.9
 15). 0.3 16). 0.71 17). 0.06 18). 0.17 19). 0.8 20). 0.26 21). 0.49

Example. Write the following fractions as decimals a). $\frac{6}{10}$ b). $\frac{67}{100}$.

a). $\frac{6}{10}$ is 6 tenths = 0.6 b). $\frac{67}{100}$ is 67 hundredths or 6 tenths and 7 hundredths = 0.67

Write the following fractions as decimals:

- 1). $\frac{11}{100}$ 2). $\frac{4}{100}$ 3). $\frac{3}{10}$ 4). $\frac{53}{100}$ 5). $\frac{22}{100}$ 6). $\frac{4}{10}$ 7). $\frac{69}{100}$
 8). $\frac{8}{10}$ 9). $\frac{28}{100}$ 10). $\frac{78}{100}$ 11). $\frac{1}{10}$ 12). $\frac{19}{100}$ 13). $\frac{35}{100}$ 14). $\frac{5}{10}$
 15). $\frac{49}{100}$ 16). $\frac{9}{10}$ 17). $\frac{92}{100}$ 18). $\frac{56}{100}$ 19). $\frac{29}{100}$ 20). $\frac{2}{10}$ 21). $\frac{81}{100}$



Temperature Questions



These are temperatures taken around the world one day in December.

City	Temperature (°C)	City	Temperature (°C)
London	5	Bangkok	35
Dubai	25	Mumbai	31
New York	9	Buenos Aires	20
Sydney	28	Cape Town	
Kuala Lumpur	34	Helsinki	2

- 1). Which is the coldest city? _____ 2). Which is the hottest city? _____

What's the difference in temperature between...

- 3). Sydney and New York? _____ 4). Dubai and Helsinki? _____
 5). Mumbai and London? _____ 6). Buenos Aires and Bangkok? _____
 7). Kuala Lumpur and Cape Town? _____

8). At 7 am the temperature was 2°C. By midday it had risen 14 degrees.
 What was the temperature at midday? _____

9). The daytime temperature was 24°C but by night it had fallen 15 degrees.
 What was the temperature that night? _____

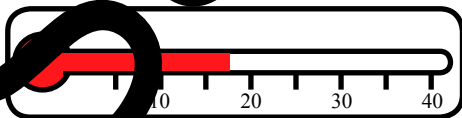
10). The classroom is 12 degrees warmer than outside. It is 19°C in the classroom.
 What is the temperature outside? _____

11). The temperature has fallen from 27°C to 16°C.
 How far has the temperature dropped? _____

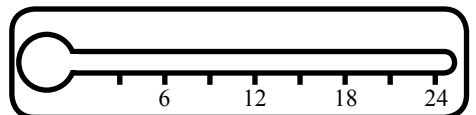
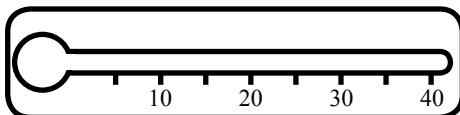
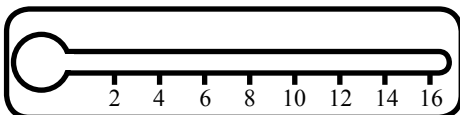
12). James likes a temperature that is warmer than 11°C.
 This is his thermometer. Will James like the temperature? _____

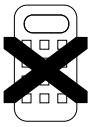


13). Sally's plants like a temperature of below 15°C.
 Here is Sally's home thermometer. Will the plants like the temperature? _____



14). Lynne is given the three different thermometers below. On each one mark 15°C.



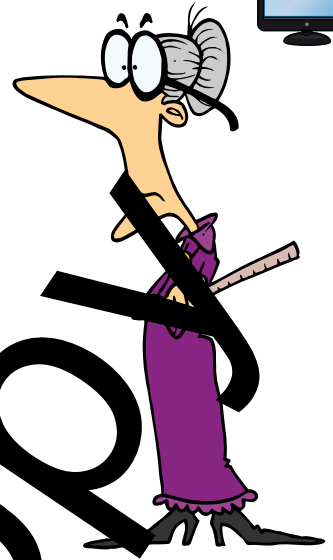


Units of Time



Time can be divided into many units.

1 century = 100 years
1 decade = 10 years
1 year = 12 months
1 year = 365/366 days
1 month = 28, 29, 30 or 31 days
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds



Sample Copy

- A.
- | | |
|--|--|
| 1). How many years are there in 4 decades? | 2). How many years are there in 7 centuries? |
| 3). How many years are there in 3 centuries? | 4). How many years are there in 8 decades? |
| 5). How many years are there in 13 centuries? | 6). How many years are there in 15 decades? |
| 7). How many decades are there in 50 years? | 8). How many centuries are there in 200 years? |
| 9). How many centuries are there in 800 years? | 10). How many decades are there in 90 years? |
| 11). How many decades are there in 120 years? | 12). How many centuries are there in 1400 years? |
- 13). How many years are there in $\frac{1}{2}$ of a century? 14). How many years are there in $\frac{1}{2}$ of a decade?

- B.
- | | |
|--|--|
| 1). How many months are there in 2 years? | 2). How many days are there in 4 weeks? |
| 3). How many days are there in 9 weeks? | 3). How many months are there in 5 years? |
| 5). How many months are there in 12 years? | 6). How many days are there in 12 weeks? |
| 7). How many years are there in 36 months? | 8). How many weeks are there in 35 days? |
| 9). How many weeks are there in 49 days? | 9). How many years are there in 72 months? |
| 11). How many years are there in 120 months? | 12). How many weeks are there in 77 days? |
- 13). How many months are there in $\frac{1}{2}$ of a year? 44). How many months are there in $\frac{1}{4}$ of a year?

- C. *Note. In this section year means a normal year, not a leap year.*
- | | |
|--|---|
| 1). How many hours are there in 3 days? | 2). How many days are there in 4 years? |
| 3). How many days are there in 5 years? | 4). How many hours are there in 5 days? |
| 5). How many hours are there in 7 days? | 6). How many days are there in 9 years? |
| 7). How many days are there in 48 hours? | 8). How many years are there in 730 days? |
| 9). How many years are there in 460 days? | 10). How many days are there in 72 hours? |
| 11). How many days are there in 240 hours? | 12). How many years are there in 3650 days? |
- 13). How many hours are there in $\frac{1}{2}$ of a day? 14). How many hours are there in $\frac{3}{4}$ of a day?

- D.
- | | |
|--|---|
| 1). How many seconds are there in 4 minutes? | 2). How many minutes are there in 3 hours? |
| 3). How many minutes are there in 8 hours? | 4). How many seconds are there in 11 minutes? |
| 5). How many seconds are there in 6 minutes? | 6). How many minutes are there in 15 hours? |
| 7). How many minutes are there in 120 seconds? | 8). How many hours are there in 300 minutes? |
| 9). How many hours are there in 540 minutes? | 10). How many minutes are there in 420 seconds? |
| 11). How many minutes are there in 2880 seconds? | 12). How many hours are there in 600 minutes? |
- 13). How many minutes are there in $\frac{1}{4}$ of an hour? 14). How many seconds are there in $\frac{3}{4}$ of a minute?

Tally Charts



Copy and fill in these tally charts for the information given.

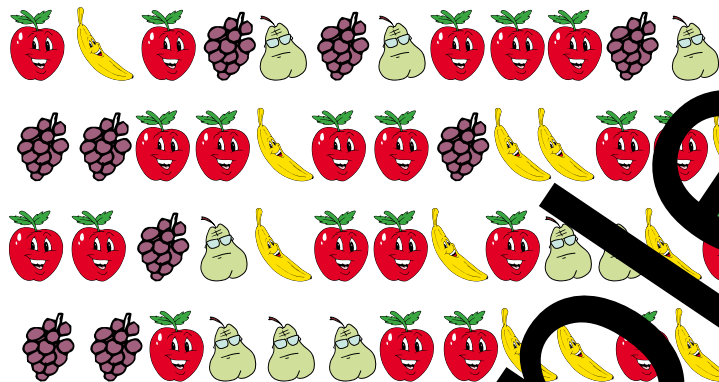
1). John goes for a walk and sees these animals.



Animal	Tally	Frequency
Total		

- a). How many dogs did he see?
- b). How many squirrels did he see?
- c). How many animals did he see in total?

2). Sally asks her friends which is their favourite fruit.



Fruit	Tally	Frequency
Total		

- a). How many liked apples the best?
- b). How many like pears the best?
- c). How many friends did she ask in total?

3). Billy asks which pet his friends would like most to own.



Pet	Tally	Frequency
Total		

- a). Which was the most popular pet?
- b). How many friends wanted worms?
- c). How many friends did he ask in total?

Probability Outcomes



The birth of a baby, throwing a coin, the weather conditions tomorrow are all **events**.

The **outcome** is what happens to an event, for example, the baby born is a boy, a coin lands on HEADS and it being sunny tomorrow.

Write in the outcomes of these events.

Sample Copy

Throw a coin.

- Heads
- Tails

5 counters in a bag. 3 yellow, 2 red. One counter is picked.

7 marbles in a box. 2 blue, 5 green. One marble is picked.

The sex of a newly born baby.

The letters A B B A are put in a bag. One letter is picked.

One die is rolled.

The letters C O O L are put in a bag. One letter is picked.

One suit from a pack of cards is chosen.

Picking a day from a calendar for next month.